REMARKS

The present Amendment amends claims 1, 7, 9, 10, 12, 19-20 and 24 and leaves claims 2-4, 6, 8, 11, 13, 15-17 and 21-23 unchanged. Therefore, the present application has pending claims 1-4 and 6-24.

Applicants' Attorney, the undersigned, and Applicants' Japanese Representative Mr. Hiroshi Kawano wish to thank Examiner Hashem Farrokh and Supervisory Patent Examiner Donald Sparks for the courtesy extended during the interview of December 9, 2005. During such interview, an agreement was reached that it appears that the Yanai (U.S. Patent No. 6,173,377) is no longer applicable to the claims as amended by the proposed amendments presented during the interview and that if it remains applicable after the filing of the Amendment incorporating the proposed amendments the Examiner will contact the Applicants' Attorney, the undersigned to discuss the reference.

Thus, since it appears that Yanai is not applicable to the claims of the present application taken Yanai individually fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Further, since Yanai is no longer applicable to the claims of the present application, combining Yanai with any of the other references, for example, Chiou (U.S. Patent No. 6,792,504) still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

It is also submitted that Chiou when taken alone fails to teach or suggest the features of the present invention as now more clearly recited in the claims as discussed during the interview. Therefore, reconsideration and

withdrawal of the rejections set forth by the Examiner in the Office Action is respectfully requested.

Claim 14 stands rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as their invention. Amendments were made to claim 14 to bring it into conformity with the requirements of 35 USC §112, second paragraph. Therefore, Applicants submit that this rejection is overcome and should be withdrawn.

Specifically, amendments were made to claim 14 to overcome the objections noted by the Examiner in paragraph 1 of the Office Action.

Applicants note that the Examiner indicated that claims 7, 9, 12, 14, 19 and 20 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Amendments were made to claims 7, 9, 12, 14, 19 and 20 to place them in independent form including all the limitations of the base claim and any intervening claims. Therefore, claims 7, 9, 12, 14, 19 and 20 are allowable as indicated by the Examiner.

Claims 1, 10, 15-18 and 21-24 stand rejected under 35 USC §102(b) as being anticipated by Yanai; and claims 2-4, 6, 8, 11 and 13 stand rejected under 35 USC §103(a) as being unpatentable over Yanai in view of Chiou. These rejections are traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in the claims are not taught or suggested by Yanai or Chiou whether taken individually or in combination with each other as suggested by the Examiner.

Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

As discussed during the interview regarding the proposed amendments, which are incorporated herein, the claims now more clearly recite the operations performed by the control module not taught or suggested by Yanai or Chiou. The control module as now more clearly recited in the claims controls, upon receiving a data I/O request from the at least one external device, a sequence of execution of a first operation of a response processing to respond to the at least one external device according to the data I/O request and a second operation of a consistency maintaining processing to maintain consistency of data stored in each of the cache memories such that one of the first and second operations is executed first and the other of the first and second operations is executed second. These features of the present invention particularly with regard to the control module are illustrated, for example, in the flowchart of Fig. 11.

For example, at Step 1116, it is decided whether the apparatus is operating in a mode 0. If it is operating in a mode 0 then the response operation is conducted as indicated by the Step 1117. Thus, the response operation is performed first and the consistency maintaining processing as represented by Steps 1119-1126 are conducted second. However, if the mode is not 0 then the consistency maintaining processing as represented by Steps 1116-1126 are conducted first and the response processing as represented by Step 1128 is performed second.

Unique according to the present invention as discussed during the interview is that consistency is very important since the cache memories for

which consistency is to be maintained are cache memories associated in a corresponding manner with the input/output channels. This configuration is illustrated, for example, in Fig. 1 of the present application wherein each input/output channel 10 is connected to its own dedicated cache 11. Thus, as discussed during the interview, if a host computer accesses a particular area of memory via, for example, an input/output channel 10a and the cache memory 11a connected to the input/output channel 10a stores the data, then an access to the same location by another host computer via the input/output channel 10d to which the cache memory 11d is connected should be matching data existing in the respective cache memories 11a, 11b. In other words, the data in the two cache memories 11a and 11d should be consistent otherwise data corruption problems could occur. Thus, the present invention is intended to address such problems by conducting a consistency maintaining operation between the cache memories 11a-11d each time a response processing operation is performed. Such features are clearly not taught or suggested by any of the references of record particularly Yanai and Chiou.

Therefore, reconsideration and withdrawal of the 35 USC §102(b) and 35 USC §102(e) rejections is respectfully requested.

As discussed during the interview, Yanai simply discloses apparatus wherein consistency is maintained between logical volumes in a remote copy system. Thus, as taught by Yanai consistency is maintained between a primary volume and a secondary volume in the respective storage systems. This teaching of Yanai is entirely different from that of the present invention since the present invention is concerned with maintaining consistency

between data held in the dedicated caches associated with the input/output channels. No such teaching can be found in Yanai.

Chiou also suffers from the same deficiencies relative to the features of the present invention being that Chiou merely teaches a cache system which is connected between multiple Storage Area Networks (SANs). There is no teaching or suggestion in Chiou that the cache is a dedicated cache associated with an input/output channel of a storage system as in the present invention. Further, there is no teaching or suggestion in Chiou that the control of the sequence of operations particularly between a response operation to an input/output request from a host computer and the cache memory consistency maintaining operation is performed in Chiou.

Therefore, Yanai whether taken individually or in combination with Chiou fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-4, 6, 8, 10, 11, 13, 15-18 and 21-24.

In view of the foregoing amendments and remarks, applicants submit that claims 1-4 and 6-24 are in condition for allowance. Accordingly, early allowance of claims 1-4 and 6-24 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (IIP-5046).

Respectfully submitted,

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